State of Provider: Type of Service, 1980-2000

DEFINITIONS AND METHODOLOGY

Health Account Structure

The structure of the SHEA parallels that of the NHE accounts. The SHEA use the same definitions and, to the extent possible, the same data sources as does NHE (Centers for Medicare & Medicaid Services, 2005). For health services, this structure clusters spending according to the establishment providing those services.[1] For retail purchases of medical products, it groups spending according to product classification. Thus, the SHEA are establishment-based, grouping services together according to place of service or of product sale, rather than according to type of service.

The Federal Government maintains an establishment-based structure for data collection codified in the *North American Industrial Classification System* (NAICS) (Office of Management and Budget, 1997). This NAICS structure (Table 1) forms the basis for the health establishment categories used in SHEA by defining activities that are primary to these establishments. Historically, the SHEA were grouped according to the *Standard Industrial Classification* (SIC) structure (Table 2) (Office of Management and Budget, 1987). NAICS replaced SIC in 1997, and therefore, the 1998 SHEA were the first set of estimates to transition between SIC and NAICS. At that time, the SHEA were grouped according to the SIC structure and were merged together with NAICS classifications to equivalent SIC groupings wherever possible (Martin et al., 2001).

The NAICS is designed to capture the evolving structure of the economy and to group establishments into common classifications based on similar inputs to the production process. For the health care and social services industry, NAICS is also structured to capture a continuum of medical and social care that often blends seamlessly from one type of facility to another. For example, the structure transitions from the most acute medical care facilities, such as offices of physicians and hospitals, to non-acute medical care facilities, such as nursing homes, to those facilities providing little or no medical care, such as certain residential facilities and those offices providing social services only.

For health expenditure accounting, this establishment-based structure of SHEA allows us to tap a wealth of State-level information collected by the Federal Government for other purposes. This structure also makes comparisons among States possible by ensuring uniformity in concepts, collection methods, and data processing across States. When individual States create their own health accounts using different concepts and data sources, such comparisons among States become more tenuous.

Although collecting data by establishment type eases the data collection burden and increases uniformity in definitions, it does not permit the accounts to measure spending

[1] The U.S. Census Bureau uses accurate and complete information on the physical location of each establishment to tabulate the census data for the States. If a provider did not provide acceptable information on their physical location, location information from Internal Revenue Service tax forms was used as a basis for coding geographic area.

for specific services. This is especially true for several health care establishment types that produce a variety of services. For example, hospitals produce inpatient and outpatient hospital services but may also operate nursing home units and/or home health agencies (HHAs) under the same organizational and establishment structure. Therefore, this establishment-based structure may not meet all the analytical needs of researchers and policymakers who wish to track delivery of specific services.

For establishment-based expenditures, spending is located in the State of the provider rather than in the beneficiary's State of residence. Because people are able to cross State borders to receive health care services, health care spending by provider location is not necessarily an accurate reflection of spending on behalf of persons residing in that State. Therefore, computing per capita health spending using State-of-provider expenditure data and resident population is not advised because of the misalignment between State of provider and State of residence. In future phases of SHEA, we will estimate border-crossing for health care services and apply these estimates to our State-of-provider expenditures, which will produce expenditures based on location of beneficiary residence. We will produce per capita expenditures, as well as interstate comparisons of spending, that are similar to those produced earlier (Martin et al., 2002).

The following sections contain further detail on the data sources and methods used to produce expenditure estimates by establishment type. Throughout these sections, we refer to categories of data produced by government agencies for different health establishment types. The sources of these data are business receipts and revenues for taxable and tax-exempt establishments from the 5-year Census of Service Industries (CSI) (U.S. Bureau of the Census, 1997); population (U.S. Bureau of the Census, 2003); wages and salaries (U.S. Bureau of Labor Statistics, 2002); and business receipts for sole proprietorships, partnerships, and corporations from the Business Master File (BMF) (U.S. Internal Revenue Service, 2001).

Hospital Care

Hospital care expenditure estimates (NAICS 622) reflect spending for all services that are provided to patients and that are billed by the hospital. Expenditures include revenues received to cover room and board, ancillary services such as operating room fees, services of resident physicians, inpatient pharmacy, hospital-based nursing home care, care delivered by hospital-based HHAs, and fees for any other services billed by the hospital. We exclude expenditures of physicians who bill independently for services delivered to patients in hospitals. These independently billed physicians are included in the physician sector.

We estimate hospital expenditures in two pieces: (1) non-Federal hospitals and (2) Federal hospitals. The non-Federal hospital expenditures are estimated using American Hospital Association (AHA) Annual Survey (2002) data that capture information from registered and non-registered hospitals in the United States. To meet the definitions of SHEA, we modify AHA data in four ways. First, we combine data from each year's survey to create a longitudinal file containing one multiple-year record for each hospital. Second, we impute hospital revenues from expense data using revenue-to-expense ratios provided by the AHA. Third, we convert the individual hospital's imputed accounting year revenues to a calendar year basis. Finally, when complete calendar year data are not

available for a facility through the most current period, we extrapolate the latest available data using patterns of acceleration and deceleration observed in the AHA (2002) National Hospital Indicator Survey data. To estimate spending in Federal hospitals, we use data from the Federal agencies that administer those facilities and from the AHA.

Physician and Other Professional Services

We estimate the combined expenditures for physician services and other professional services (NAICS 6211, 6213, and 6214) in five pieces: (1) expenditures in private physician offices and clinics and specialty clinics[2]; (2) fees of independently billing laboratories; (3) professional fees received by physicians from hospitals; (4) expenditures for the services of licensed professionals; and (5) spending for Medicare ambulance services.

Expenditures in private physician offices and clinics and specialty clinics are based on State distributions of business receipts from taxable establishments and on revenues from tax-exempt establishments, as reported in the 1977, 1982, 1987, 1992, and 1997 CSI. To estimate the distribution of expenditures among States between census years, we use growth in business receipts of sole proprietorships, partnerships, and corporations for taxable establishments; for tax-exempt establishments, we use growth in population. These distributions are then separately scaled to national totals. To estimate the 1998 through 2000 distributions of expenditures in taxable and tax-exempt establishments, we extrapolate using growth in resident population. These taxable and tax-exempt distributions are then separately scaled to national totals.

To estimate independently billing laboratory expenditures, we use distributions by State of business receipts in taxable physician establishments from the BMF. These amounts are scaled to national totals and are added to the physician and other professional services estimates.

We reduce expenditures in physicians and other professionals for each State by the amount of professional fees paid by hospitals to physicians. Based on professional fee expenses from the AHA Annual Surveys for 1980, 1985, and 1990-1993, we distribute professional fees to the States. Using AHA community hospital revenues, we estimate expenditures by State for intervening years and for 1994-2000 through interpolation and extrapolation techniques. Finally, we scale the results to national totals.

To estimate expenditures for the services of licensed professionals such as chiropractors, optometrists, podiatrists, and independently practicing nurses, we use CSI and BMF data, just as we do for taxable physician offices and clinics and specialty clinics. (There are no tax-exempt establishments for licensed other professionals.) Finally, we use Medicare data to estimate spending for Medicare ambulance services.

[2] Specialty clinics include family planning centers, outpatient mental health and substance abuse centers, all other outpatient care facilities, and kidney dialysis centers.

Dental Services
Expenditures in Offices and Clinics of Dentists (NAICS 6212) are based on State distributions of business receipts from taxable establishments reported in the 1977, 1982, 1987, 1992, and 1997 CSI. (No tax-exempt dental offices and clinic establishments report in the CSI.) We estimate State distributions for intervening years using business receipts from the BMF for sole proprietorships, partnerships, and corporations. To estimate State distributions of 2000 spending, we extrapolate the 1997 CSI-based estimates using growth in receipts from the BMF in dental offices. For all years, distributions are scaled to national totals.

Prescription Drugs and Other Non-Durable Medical Products
We estimate this category in two parts: spending for prescription drugs and spending for non-prescription (over-the-counter) medicines and sundries. For both parts, we base our estimates on retail sales data reported in the 1977, 1982, 1987, 1992, and 1997 Census of Retail Trade, Merchandise Line Sales (U.S. Bureau of the Census, 1997). We interpolate distributions for intervening years using population data.

In the case of prescription drugs, we estimate expenditures for 1998 and later using State data reported in the *Retail Prescription Method of Payment Report* (IMS Health, 2002). For non-prescription drugs, we extrapolate for years 1998-2000 using population data. In both cases, we scale distributions to national totals.

Durable Medical Products
Using State data from the Census of Retail Trade for 1977, 1982, 1987, 1992, and 1997 (U.S. Bureau of the Census, 1997), we estimate expenditures for optical goods sold in retail establishments. To estimate optical goods sales that occur in optometrist offices, we use optometrist offices' business receipts from the 1977, 1982, 1987, 1992, and 1997 CSI. We rely on per capita personal income statistics (U.S Bureau of Economic Analysis, 2002) to extrapolate and interpolate estimates of optical sales for years when actual retail sales are not available. Finally, distributions by State are scaled to national totals.

Home Health Care
We base expenditure estimates for care provided in freestanding HHAs (NAICS 6216) on revenue estimates for taxable businesses and on receipt information from the CSI for tax-exempt businesses. Because a separate SIC for HHAs (SIC 8082) was first created with the release of the 1987 SIC, data for this service category are available for 1987, 1992, and 1997 only and serve as a benchmark for private spending on freestanding home health services by State. Comparing Medicare reimbursements for government-owned HHAs with Medicare reimbursements for all ownership types of HHAs, we develop separate estimates of spending for government-supplied home health services (not surveyed by the CSI) for 1987, 1992, and 1997. We then sum expenditures for services from government and private HHAs. Next, using expenditures for home health services paid by Medicare and Medicaid, we interpolate and extrapolate estimates for 1980-1986 and 1988-1991. For 1993-1996, we interpolate CSI-based spending using the growth in private wages and salaries paid by home health care establishments. For 1998-2000 expenditures by State, we extrapolate using the growth in private wages and salaries paid

by home health care establishments. Finally, we control our State distributions to national estimates of freestanding home health expenditures.

Nursing Home Care

Expenditures reported in this category are for services provided by freestanding nursing homes. These facilities are defined in the NAICS as establishments primarily engaged in providing inpatient nursing and rehabilitative services and continuous personal care services to persons requiring nursing care (NAICS 6231) and continuing care retirement communities with on-site nursing care facilities (NAICS 623311). These services do not include nursing home services provided in long-term care units of hospitals. (Nursing home services provided in hospitals are contained in the hospital estimates).

The nursing home estimates are prepared in four pieces: (1) private nursing homes; (2) State and local nursing homes; (3) nursing homes operated by the U.S. Department of Veterans Affairs (DVA); and (4) intermediate care facilities for the mentally retarded (ICFs/MR).

To estimate spending in private nursing homes, we use revenues for taxable businesses, and for tax-exempt businesses, we use receipts that are collected in the CSI for 1977, 1982, 1987, 1992, and 1997. We interpolate and extrapolate revenues and receipts by State using wages and salaries paid in private nursing home establishments. To estimate expenditures in government nursing homes, we inflate wages and salaries to revenues for State and local government nursing facilities. We estimate spending for nursing home care in DVA facilities from State-specific data furnished by DVA. To estimate spending for ICFs/MR, we use Medicaid expenditures for nursing home care in ICFs/MR reported by State Medicaid agencies on Form CMS-64 (Centers for Medicare & Medicaid Services, 1980-2000). Finally, the distributions by State are scaled to national totals.

Other Personal Health Care

Privately funded other personal health care consists of industrial in-plant services provided by employers for the health care needs of their employees. We estimate expenditures for these services using the number of occupational health nurses (American Nurses' Association, 1979; Health Resources and Services Administration, 1985, 1993, 1997 and 2001) and average annual wages in the health services sector (U.S. Bureau of Economic Analysis, 2002).

Public expenditures include Medicaid and States' general medical assistance spending for health screening services, certain home and community-based waivers, case management, and transportation services. Also covered in this category are expenses for certain facilities operated by the U.S. Department of Defense; expenditures for certain services funded through State and local maternal and child health programs; school health programs; and Federal agency programs targeting veterans, military personnel, Native Americans, and persons with drug or alcohol dependency or mental health-related problems. We use agency-supplied data to estimate government spending for each other personal health care program.

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Table 1

Selected 1997 North American Industrial Classification System Numbers

Industry Group Number	Industry
62	Health Care and Social Services
621	Ambulatory Health Care Services
6211	Offices of Physicians
6212	Offices of Dentists
6213	Offices of Other Health Practitioners
6214	Outpatient Care Centers
6215	Medical and Diagnostic Laboratories
6216	Home Health Care Services
6219	Other Ambulatory Health Care Services
622	Hospitals
6221	General Medical and Surgical Hospitals
6222	Psychiatric and Substance Abuse Hospitals
6223	Specialty (Except Psychiatric and Substance Abuse) Hospitals
623	Nursing and Residential Care Facilities
6231	Nursing Care Facilities
6232	Residential Mental Retardation, Mental Health and Substance Abuse Facilities
6233	Community Care Facilities for the Elderly
6239	Other Residential Care Facilities
624	Social Assistance

SOURCE: (Office of Management and Budget, 1997.)

Table 2

Selected 1987 Standard Industrial Classification Numbers

Industry Group Number	Industry
801	Offices and Clinics of Doctors of Medicine
802	Offices and Clinics of Dentists
803	Offices and Clinics of Doctors of Osteopathy
804	Offices and Clinics of Other Health Practitioners
805	Nursing and Personal Care Facilities
806	Hospitals
807	Medical and Dental Laboratories
808	Home Health Agencies
809	Miscellaneous Health and Allied Services, Not Elsewhere Classified

SOURCE: (Office of Management and Budget, 1987.)